MTHRIL

MTHMIN1

LIS

```
0000    1          .TITLE  MTH$MIN1        IMIN1, JMIN1, and AMIN1 functions
0000    2          .IDENT  /1-002/         ; File: MTHMIN1.MAR
0000    3  ;
0000    4  ;
0000    5  ;*******************************************************************
0000    6  ;*                                                                 *
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0000   24  ;*                                                                 *
0000   25  ;*                                                                 *
0000   26  ;*******************************************************************
0000   27  ;
0000   28  ;
0000   29  ; FACILITY: MATH LIBRARY
0000   30  ;++
0000   31  ; ABSTRACT:
0000   32  ;       This module contains the minimum value functions which take
0000   33  ;       floating-point arguments.
0000   34  ;
0000   35  ;
0000   36  ;--
0000   37  ;
0000   38  ; VERSION: 0
0000   39  ;
0000   40  ; HISTORY:
0000   41  ;
0000   42  ; AUTHOR:
0000   43  ;       Jonathan M. Taylor, 12-JUL-77: Version 0
0000   44  ;
0000   45  ; MODIFIED BY:
0000   46  ;
0000   47  ;
0000   48  ;
```

MTH$MIN1
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IMIN1, JMIN1, and AMIN1 functions C 7   16-SEP-1984 01:47:02   VAX/VMS Macro V04-00   Page   2
HISTORY ; Detailed Current Edit History   6-SEP-1984 11:26:40 [MTHRTL.SRC]MTHMIN1.MAR;1   (2)

```
0000   50            .SBTTL  HISTORY          ; Detailed Current Edit History
0000   51
0000   52
0000   53 ; Edit History for Version 0 of MTHMIN1
0000   54 ;
0000   55 ; 0-4   - Remove MTH$FLAG_JACKET.  TNH 26-July-78
0000   56 ; 0-5   - Fix access violation.  TNH 16-Aug-78
0000   57 ; 1-001 - Update version number and copyright notice.  JBS 16-NOV-78
0000   58 ; 1-002 - Add "_" to the PSECT directive.  JBS 22-DEC-78
```

```
         0000      60              .SBTTL  DECLARATIONS
         0000      61
         0000      62  ;
         0000      63  ; INCLUDE FILES:
         0000      64  ;     oerr.mar
         0000      65  ;
         0000      66
         0000      67  ;
         0000      68  ; EXTERNAL SYMBOLS:
         0000      69  ;     NONE
         0000      70  ;
         0000      71
         0000      72  ;
         0000      73  ; MACROS:
         0000      74  ;     NONE
         0000      75  ;
         0000      76
         0000      77  ;
         0000      78  ; PSECT DECLARATIONS:
     00000000      79        .PSECT  _MTH$CODE        PIC, SHR, LONG, EXE, NOWRT
         0000      80
         0000      81  ;
         0000      82  ; EQUATED SYMBOLS:
         0000      83  ;     NONE
         0000      84  ;
         0000      85
         0000      86  ;
         0000      87  ; OWN STORAGE:
         0000      88  ;     NONE
         0000      89  ;
```

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IMIN1, JMIN1, and AMIN1 functions   16-SEP-1984 01:47:02   VAX/VMS Macro V04-00   Page   4
MTH$IMIN1, MTH$JMIN1, MTH$AMIN1   6-SEP-1984 11:26:40   [MTHRTL.SRC]MTHMIN1.MAR;1   (4)

```
                        0000      91              .SBTTL   MTH$IMIN1, MTH$JMIN1, MTH$AMIN1
                        0000      92
                        0000      93    ;++
                        0000      94    ; FUNCTIONAL DESCRIPTION:
                        0000      95    ;       Use routine MINF to compute the minimum of n arguments,
                        0000      96    ;       n is greater than or equal to 1.  Return the result converted
                        0000      97    ;       to the proper type.
                        0000      98    ;
                        0000      99    ;
                        0000     100    ; CALLING SEQUENCE:
                        0000     101    ;       Minimum.ww.v = MTH$IMIN1 ({arg.rf.r})
                        0000     102    ;       Minimum.wl.v = MTH$JMIN1 ({arg.rf.r})
                        0000     103    ;       Minimum.wf.v = MTH$AMIN1 ({arg.rf.r})
                        0000     104    ;
                        0000     105    ;
                        0000     106    ;
                        0000     107    ; INPUT PARAMETERS:
                        0000     108    ;       The n parameters are single-precision floating-point values
                        0000     109    ;       and are call-by-reference.
                        0000     110    ;
                        0000     111    ;
                        0000     112    ; IMPLICIT INPUTS:
                        0000     113    ;       NONE
                        0000     114    ;
                        0000     115    ; OUTPUT PARAMETERS:
                        0000     116    ;       NONE
                        0000     117    ;
                        0000     118    ; IMPLICIT OUTPUTS:
                        0000     119    ;       NONE
                        0000     120    ;
                        0000     121    ; COMPLETION CODES:
                        0000     122    ;       NONE
                        0000     123    ;
                        0000     124    ; SIDE EFFECTS:
                        0000     125    ;       Reserved Operand and Integer Overflow exceptions can occur.
                        0000     126    ;
                        0000     127    ;
                        0000     128    ;--
                        0000     129
                        0000     130
                        0000     131
                        0000     132
              4000      0000     133              .ENTRY   MTH$IMIN1,       ^M<IV>
        11      10      0002     134              BSB      MINF            ; R0 = min arg
  50    50      49      0004     135              CVTFW    R0, R0          ; INTEGER*2 it
                04      0007     136              RET
                        0008     137
              4000      0008     138              .ENTRY   MTH$JMIN1,       ^M<IV>
        09      10      000A     139              BSB      MINF            ; R0 = min arg
  50    50      4A      000C     140              CVTFL    R0, R0          ; INTEGER*4 it
                04      000F     141              RET
                        0010     142
              0000      0010     143              .ENTRY   MTH$AMIN1,       ^M<>
        01      10      0012     144              BSB      MINF            ; R0 = min arg
                04      0014     145              RET
                        0015     146
                        0015     147    ;+
```

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IMIN1, JMIN1, and AMIN1 functions   16-SEP-1984 01:47:02 VAX/VMS Macro V04-00   Page 5
MTHSIMIN1, MTHSJMIN1, MTHSAMIN1   6-SEP-1984 11:26:40 [MTHRTL.SRC]MTHMIN1.MAR;1   (4)

```
                           0015    148 ; MINF returns smallest of the REAL*4 args.
                           0015    149 ;-
                           0015    150
                           0015    151 MINF:
        51    6C    9A     0015    152         MOVZBL  (AP), R1           ; R1 = number of args
              8C    D5     0018    153         TSTL    (AP)+             ; AP -> first arg adr
        50    9C    50     001A    154 1$:     MOVF    @(AP)+, R0        ; get trial min
              08    11     001D    155         BRB     3$                ; check arg count
  50    00 BC    51        001F    156 2$:     CMPF    @0(AP),R0         ; if this arg is less then trial min
        F5    19           0023    157         BLSS    1$                ; then it becomes trial min
              8C    D5     0025    158         TSTL    (AP)+             ; else ignore it
     F5 51    F5           0027    159 3$:     SOBGTR  R1, 2$            ; check arg count
              05           002A    160         RSB
                           002B    161
                           002B    162
                           002B    163         .END
```

```
MINF                    00000015 R      01
MTH$AMIN1               00000010 RG     01
MTH$IMIN1               00000000 RG     01
MTH$JMIN1               00000008 RG     01
```

+-----------------+
! Psect synopsis !
+-----------------+

```
PSECT name                      Allocation            PSECT No.  Attributes

. ABS .                         00000000 (    0.)  00 (  0.)  NOPIC  USR   CON  ABS  LCL NOSHR NOEXE NORD  NOWRT NOVEC BYTE
_MTH$CODE                       0000002B (   43.)  01 (  1.)  PIC    USR   CON  REL  LCL  SHR  EXE   RD   NOWRT NOVEC LONG
```

+--------------------------+
! Performance indicators !
+--------------------------+

```
Phase                 Page faults   CPU Time        Elapsed Time
-----                 -----------   --------        ------------
Initialization                 31   00:00:00.10     00:00:01.50
Command processing            133   00:00:00.55     00:00:03.54
Pass 1                         68   00:00:00.46     00:00:02.71
Symbol table sort               0   00:00:00.00     00:00:00.00
Pass 2                         44   00:00:00.38     00:00:01.59
Symbol table output             2   00:00:00.02     00:00:00.11
Psect synopsis output           2   00:00:00.02     00:00:00.02
Cross-reference output          0   00:00:00.00     00:00:00.00
Assembler run totals          282   00:00:01.53     00:00:09.47
```

The working set limit was 750 pages.
1762 bytes (4 pages) of virtual memory were used to buffer the intermediate code.
There were 10 pages of symbol table space allocated to hold 4 non-local and 3 local symbols.
163 source lines were read in Pass 1, producing 16 object records in Pass 2.
0 pages of virtual memory were used to define 0 macros.

+------------------------------+
! Macro library statistics !
+------------------------------+

```
Macro library name                       Macros defined
------------------                       --------------
_$255$DUA28:[SYSLIB]STARLET.MLB;2                0
```

0 GETS were required to define 0 macros.

There were no errors, warnings or information messages.

MACRO/ENABLE=SUPPRESSION/DISABLE=(GLOBAL,TRACEBACK)/LIS=LIS$:MTHMIN1/OBJ=OBJ$:MTHMIN1 MSRC$:MTHMIN1/UPDATE=(ENH$:MTHMIN1)

MTHJMIN0
LIS

MTHMSG
LIS

MTHIMIN0
LIS

MTHMAX1
LIS

MTHJIDNNT
LIS

MTHMSGDEF
LIS

MTHJIHNNT
LIS

MTHSGN
LIS

MTHJMAX0
LIS

MTHMOD
LIS

MTHSIGNAL
LIS

MTHSQRTR2
LIS

MTHJNINT
LIS

MTHSINCOS
LIS

MTHSQRT
LIS

MTHININT
LIS

MTHRANDOM
LIS

MTHJIGNNT
LIS

MTHMINI
LIS

MTHJISIGN
LIS

MTHSIGN
LIS

MTHSINH
LIS